

*ERYTHRONIUM TAYLORI* (LILIACEAE), A NEW SPECIES  
FROM THE CENTRAL SIERRA NEVADA OF CALIFORNIA

JAMES R. SHEVOCK<sup>1</sup>

USDA Forest Service, Pacific Southwest Region, Ecosystem  
Conservation Division, 630 Sansome Street,  
San Francisco, CA 94111

GERALDINE A. ALLEN

Department of Biology, University of Victoria, Victoria,  
British Columbia V8W 2Y2, Canada

ABSTRACT

*Erythronium taylori*, a new species from the central Sierra Nevada of California, is described and illustrated. This new taxon has evident affinities to other Californian *Erythronium* with unmottled leaves, especially *E. pusaterii*. The plain-leaved fawn-lilies of the Sierra Nevada have similarities in floral and other structures, suggesting that they form a single clade.

INTRODUCTION

The genus *Erythronium* consists of 25 to 30 species worldwide, of which perhaps 16 species occur in western North America. Morphological and ecological features of this western group suggest that they form a distinct lineage, well separated from the species of eastern North America and the Old World. However, relationships within this group have received little attention since the monographic work of Applegate (1935) and are not well understood.

Applegate divided the western North American species into two sections based on the presence or absence of leaf mottling. Species of sect. *Pardalinae* had mottled leaves and occurred in low-elevation habitats, and those of sect. *Concolorae* had unmottled green leaves and were most commonly found at higher elevations. In California, the latter group includes five closely related species restricted to the Cascade Mountains and Sierra Nevada, and one widespread and more distantly related species, *E. grandiflorum* (Allen 1993).

The new species of *Erythronium* described in this paper has close morphological similarities with other Sierra Nevada species of sect. *Concolorae*. It was discovered by Dean W. Taylor on 23 April 1996, along Pilot Ridge in the Tuolumne River Basin. This brings the

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<sup>1</sup> Current address: USDI National Park Service, Pacific West Region, 600 Harrison Street, Suite 600, San Francisco, CA 94107-1372.

number of *Erythronium* species for the Sierra Nevada to six, with three documented for Tuolumne County (Shevock et al. 1990).

***Erythronium taylori*** Shevock & Allen sp. nov. (Fig. 1).—TYPE: USA, California, Tuolumne Co., Ascension Mountain 7.5 minute quadrangle, South Fork Tuolumne River basin, Packard Creek drainage, lower slopes of Pilot Ridge above forest road 1S13 on metamorphic rock outcrops of paleozoic marine origin, Douglas fir-mixed conifer-black oak forest, Stanislaus National Forest, T2S, R18E, sect. 4 NE  $\frac{1}{4}$ , 4400 ft (1340 m), 23 April 1996, *Taylor 15614* (holotype: JEPS; isotypes: CAS, K, MO, NY, RSA, US, UVIC).

Folia (18)21–28(32) cm longa 4–9 cm lata elliptica vel oblanceolata non maculata; scapus floribus singularibus vel pluribus; flores tepalis 24–40 mm longis late lanceolatis recurvis; tepala basibus aureis apicibus albis aetate subroseis, appendiculis saccatis basalibus; antheris eburneis, filamentis luteis tenuibus; stylo clavato eburneo, stigmatate integro vel brevilobato, lobi minus quam 1 mm longis.

Bulbs 4–7 cm long, 1.5–3 cm wide, often in clumps. Leaves 2, unmottled, light green without undulate margins, (18)21–28(32) cm long, 4–9 cm wide, oblanceolate to elliptic. Scapes 25–40 cm tall; flowers 1–4(8), fragrant, nodding. Perianth segments recurved to spreading, acuminate to lanceolate, 24–40 mm long, 7–12 mm wide, bicolored, terminal portion white, basal  $\frac{1}{3}$  to  $\frac{2}{5}$  bright yellow, fading pinkish after anthesis, inner three perianth segments with saclike folds at base. Filaments 8–12 mm, bright yellow, anthers cream-colored; style 9–11 mm, cream-white; stigma  $\pm$  entire or 3-lobed, lobes <1 mm long. Capsule narrowly obovate, 20–33 mm long on erect pedicels. Seeds ovoid,  $\pm 3$  mm, light brown.

*Paratypes.* USA, California, Tuolumne Co., from type locality, 27 April 1996, *Shevock 13281* [flowering material] (CAS, FSC, JEPS, MO, RSA, UVIC); 4 May 1996, *Taylor 15631* (JEPS); 3 June 1996, *Shevock 13431* [fruiting material] (CAS, JEPS, RSA, UVIC).

*Distribution, habitat and phenology.* *Erythronium taylori* is currently known only from the type locality. It occurs on steep metamorphic rock outcrops in Douglas fir-mixed conifer-black oak forest, on a northeast slope below Pilot Ridge at 1340 to 1400 m, approximately 0.5 km north of the Tuolumne-Mariposa County line. This location lies at the northern end of an area of paleozoic marine sediments (Mariposa geologic sheet, 1:250,000) surrounded primarily by mesozoic granitic rocks. The southern end of this paleozoic marine area extends into the Merced River Basin toward the Chowchilla Mountains and Devil's Peak on the Sierra National Forest, Mariposa County. This new taxon appears to be locally abundant at the type locality, forming large colonies on rock terraces, ledges and

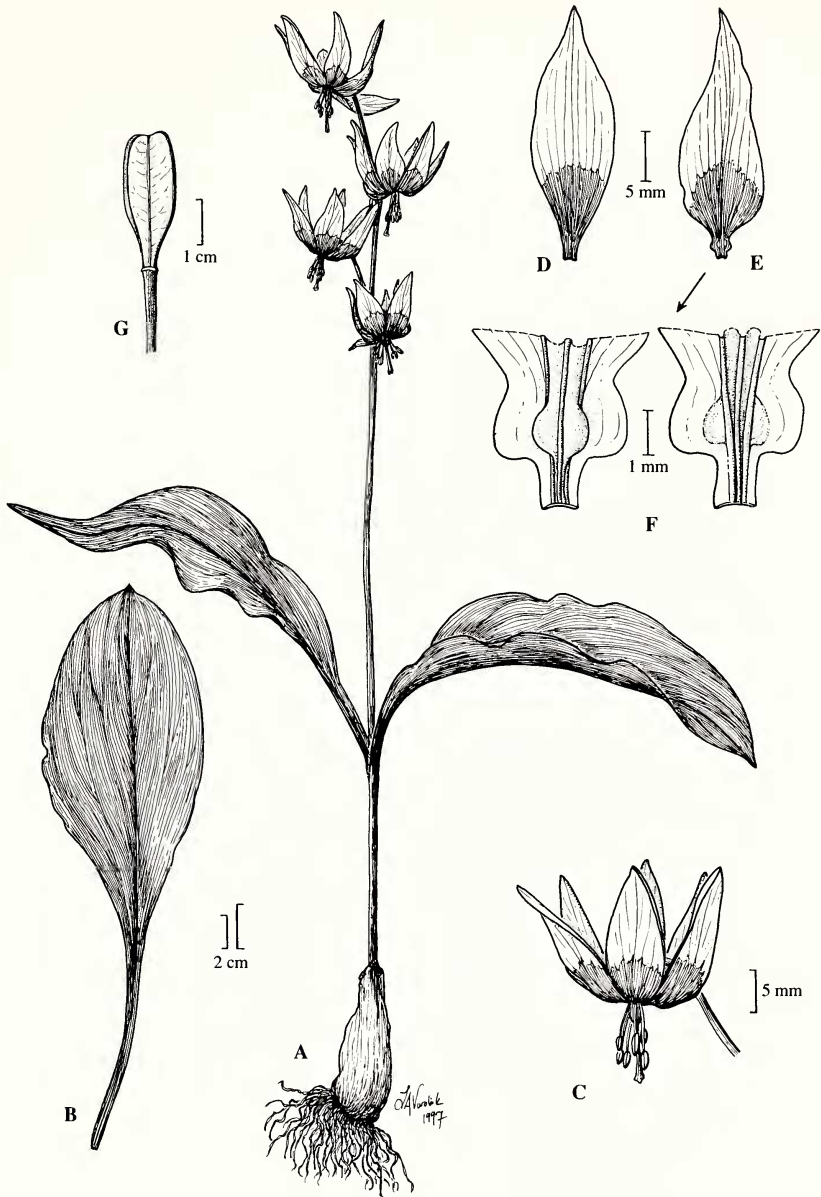


FIG. 1. *Erythronium taylori* J. R. Shevock & G. A. Allen. A. flowering scape; B. leaf; C. closeup of flower; D. outer perianth segment; E. inner perianth segment with saclike appendages; F. upper (left) and lower view (right) of saclike appendages; G. capsule.

crevices with sufficiently deep soil. The population is estimated to consist of at least a thousand plants, and additional populations should be looked for in the area.

Flowering of *E. taylori* at the type locality is from mid-April to early May. This habitat receives some snow but lacks a deep winter snowpack. Plants were observed at the bases of rock outcrops, but not in adjacent forest. This area burned in a wildfire in 1987 and some salvage logging has since occurred below the rock outcrops where the fawn-lilies are found. However, there was no evidence that *E. taylori* has been impacted adversely by the fire or adjacent timber harvesting. Associated vascular plant species include *Cheilanthes covillei*, *Cystopteris fragilis*, *Draperia stystyla*, *Dryopteris arguta*, *Dicentra formosa*, *Heuchera micrantha*, *Hieracium albiflorum*, *Penstemon newberryi*, *Polypodium hesperium*, *Polystichum imbricans*, *Spiraea densiflora*, *Streptanthus tortulosus* s.l., *Toxicodendron diversilobum*, and *Vaccinium parviflorum*. Bryophytes commonly associated with *Erythronium taylori* include *Anacolia menziesii*, *Bryum capillare*, *B. pseudotriquetrum*, *Hedwigia detonsa*, *Homalothecium pinnatifidum*, *Isopterygiopsis pulchella*, *Isothecium cardotii*, *Marsupella sphacelata*, *Orthotrichum rupestre*, *Polytrichum juniperinum*, *P. piliferum*, and *Pseudobraunia californica*.

*Relationships.* *Erythronium taylori* belongs to a group of five species endemic to the Sierra Nevada, which share a number of morphological features. In addition to *E. taylori*, this group includes *E. purpurascens*, a small-flowered regional endemic extending from Shasta to Tuolumne counties, and three local endemics, *E. pluriflorum*, *E. pusaterii*, and *E. tuolumnense*. *Erythronium taylori* resembles *E. purpurascens* and *E. pusaterii* in having bicolored flowers, although its flowers are generally fewer (commonly 1–3 per scape). It has in common with *E. pusaterii* and *E. tuolumnense* the presence of well defined sac-like folds at the bases of the inner perianth segments, and shares with *E. tuolumnense* a tendency (as inferred from the clumped growth habit) to produce bulb offsets. On morphological grounds, *E. taylori* appears to be most closely related to *E. pusaterii*, but further study will be needed to establish more precisely the phylogenetic relationships of these species.

#### REVISED KEY TO SIERRA NEVADA *ERYTHRONIUM*

- A. Leaves mottled with brown or white; stigma with well-developed lobes 1–4 mm; perianth bicolored (yellow and white); anthers cream-white . . . . . *E. multiscapoideum*
- A' Leaves not mottled; stigma entire or with lobes <1 mm; perianth bicolored or yellow; anthers cream to yellow
  - B. Perianth segments bicolored, the tips white, the basal ⅓ to ½ bright yellow
  - C. Perianth segments 10–15 mm long, lacking saclike appendages at base . . . . . *E. purpurascens*

- C' Perianth segments 20–45 mm long, the inner three with saclike appendages at base
  - D. Anthers yellow; filaments cream-white; leaves gen 2–5 cm wide; occurring at elevations >2000 m . . . . . *E. pusaterii*
  - D' Anthers cream-white; filaments yellow; leaves gen 4–9 cm wide; occurring at elevations <1500 m . . . . . *E. taylori*
- B' Perianth yellow throughout
  - E. Perianth segments 25–35 mm long, 8–12 mm wide, the inner with appendages at base; style, stigma and filaments white . . . . . *E. tuolumnense*
  - E' Perianth segments 15–28 mm long, 4–7 mm wide, lacking saclike appendages; style, stigma and filaments yellow . . . . . *E. pluriflorum*

*Rarity.* *Erythronium taylori* is known only from the type locality, and is thus the rarest of the Sierran *Erythronium* taxa. Although additional occurrences may be found in further surveys, this species is probably a localized endemic. The Stanislaus National Forest will manage the habitat to conserve the species.

Like other montane *Erythronium* species in the Sierra Nevada, this species occupies a habitat with ample early-season moisture, moderate summer temperatures, and cool winters. Cultivation of *E. taylori* at lower elevations is unlikely to be successful, and because of its rarity, this species should not be collected for that purpose.

It is a pleasure to name this species for a colleague and friend who is one of California's indefatigable field workers. Dean Taylor's botanical explorations have yielded several new taxa for California (e.g., *Neviusia cliftonii* and *Carex tiogana*) and he has that special trait of sharing his knowledge and enthusiasm for the California flora with all he meets.

#### ACKNOWLEDGMENTS

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#### LITERATURE CITED

- APPLEGATE, E. I. 1935. The genus *Erythronium*: a taxonomic and distributional study of the western North American species. *Madroño* 3:58–113.
- ALLEN, G. A. 1993. *Erythronium*. Pp. 1192–1194 in J. C. Hickman (ed.), *The Jepson manual: higher plants of California*. University of California Press, Berkeley.
- SHEVOCK, J. R., G. A. ALLEN, and J. BARTEL. 1990. Distribution, ecology and taxonomy of *Erythronium* (Liliaceae) in the Sierra Nevada of California. *Madroño* 37(4):261–273.